

Chapter 7

Urinary Diversion Operations

Urinary diversion operations are an option for fistula patients who are deemed incurable. These often include patients who have had many operations to try and make them dry, but who are still wet due to either a small bladder or a urethra that does not work or a combination of both. There are several different types of urinary diversion operation, which all have advantages and disadvantages for the patient, with none of the options being perfect.

Mainz II pouch

The Mainz II pouch is created in such a way that the ureters are implanted into a pouch constructed from bowel, so the patient passes stool and urine through the anus. For this operation to be a success, the patient should have good anal sphincter control. This is tested by asking the patient to hold about 250 ml of water mixed with methylene blue or gentian violet given as an enema for 60 minutes. The ideal patient for diversion should not leak, and this is judged by giving her a pad to wear during the assessment period. Good sphincter control is confirmed when there is no dye on the pad.

The patient should have normal renal function before proceeding with this operation, as any renal impairment will cause the patient to become acidotic and to potentially develop other complications. Renal function should be checked at least on a yearly basis, as well as a renal ultrasound performed to check for hydronephrosis.

Diverting urine to the bowel alters the patient's metabolic state, as some of the urinary constituents will be absorbed through the bowel, causing the blood to become more acidic. To prevent metabolic acidosis, the patient should take a daily teaspoonful of sodium bicarbonate orally for the rest of their life following this procedure. This is readily available, as it is a common ingredient used for baking.

Diversion patients should also be carefully counselled about the increased risk of tumours developing in the sigmoid colon – with an estimated risk of 20% over 20 years – and they should be advised to

consult a surgeon if they experience severe abdominal pain or blood in their stool.

Ileal conduit

The ileal conduit involves diverting the ureters into a small section of bowel which opens out onto the skin of the abdomen as a stoma. The urine drains into the ileal conduit and collects into a urostomy bag, which is emptied by the patient. This form of diversion is good for patients with impaired renal function, since there is less absorption of urinary constituents, hence less risk of metabolic acidosis.

For this operation to be a success, the patient should have a readily available supply of urostomy bags, which is often not a realistic option in many contexts in which fistula occurs. Another element that needs careful consideration is that many women may find it unacceptable to have a different anatomy/body image from others in their community, and to face the prospect of living with a stoma bag for the rest of their life.

Continence pouch (Mitrofanoff)

A continence pouch may be an option for patients who have good bladder capacity, but who have a badly damaged urethra. For such cases, a Mitrofanoff procedure can be performed, which involves using the appendix or bowel to drain urine from the bladder to the wall of the abdomen, and totally closing off the urethra. The patient can self-catheterise by passing a catheter through the appendix/bowel to empty the bladder.

Patients may experience some leakage if they do not empty their bladder on a regular basis.

This is a highly complex procedure, which should be performed only in specialist centres.

Suprapubic catheter

The use of suprapubic catheters is a long-term option for certain patients who may be considered unsuitable for other types of diversion operation. They have a suprapubic catheter inserted through the abdomen and can use a spigot to keep it closed, opening it every few hours to empty the bladder. The Foley catheter requires to be changed

once a month if the patient is happy to accept this option. If the patient has ongoing leakage of urine from a damaged urethra, they may still not be completely dry, even when they use a suprapubic catheter.

Nursing care for patients with urinary diversions

The diversion operations all involve surgery through the abdomen. The pre- and postoperative nursing care is the same as for all abdominal surgery. However, there are a few instructions specific to each operation.

Preoperative care is the same as for fistula and perineal tear operations, including fasting from the night before surgery, preoperative blood investigations, cannulation, surgical-site preparation and a theatre gown.

In addition, diversion patients require meticulous preoperative bowel preparation to prevent infection. This involves giving a soap enema the evening before surgery to clear out stool, then giving a saline enema to wash out the rectum on the morning before theatre.

Postoperatively, patients should be carefully monitored, so that any complications can be detected early. In the immediate postoperative period, blood pressure and pulse should be checked hourly for the first 6 hours, then 2-hourly for 6 hours, then 4-hourly until the patient is fully ambulant and stable.

On return from theatre and in the immediate postoperative period, it is important to observe the patient closely for signs of bleeding. Regular monitoring of the patient's vital observations is critical during this phase, as any change – including a drop in blood pressure and an increase in pulse rate – may indicate bleeding. Such patients are likely to be in pain, perspire and become drowsy. Any suspicion or sign of bleeding should therefore be reported as an emergency to the medical staff.

An anastomotic leak postoperatively is most likely to happen around day 5. Pain, tachycardia and a spiking temperature are suggestive of a leak. If this occurs, the surgeon should be notified immediately to decide if the patient needs to be taken back to theatre. An anastomotic leak is a highly dangerous complication for the patient, which can result in death. The quicker the situation is dealt with, the more likely the patient is to survive, and they should receive IV antibiotics and return to theatre as an emergency. They may need to have the procedure repeated or a colostomy performed.

Nursing Care for Women with Childbirth Injuries

IV fluids should be administered for the first few days while the patient is nil by mouth. However, the patient can start taking sips of water on day 1, then take oral fluids for 4 days, eventually moving on to take a light diet, if there are no signs of paralytic ileus. This regime allows sufficient time for the pouch and the implanted ureters to heal at the site of the anastomosis.

The patient is likely to require strong analgesia, such as opiates for the first 24–48 hours postoperatively to keep her comfortable and to allow healing. She will remain on bed rest for the first 1–2 days, after which, she may start mobilising round the ward when she feels ready.

Mainz II patients usually have a rectal tube, which is likely to be a size 24 Foley catheter, and an endotracheal or flatus tube extending out of the anus (Figure 69). This is to drain stool and urine. They will also generally have two ureteric catheters draining urine from the ureters, and which have been reimplemented into the pouch. The rectal tube should be removed after the second postoperative day, as they do tend to become blocked with stool. The ureteric catheters should remain for 7–10 days and should be checked daily to make sure they are draining. Instructions for removal of the ureteric catheters should be given by the surgeon in the postoperative instructions, which should be followed carefully.



Figure 69 Rectal tube and ureteric catheters protruding from anus in a Mainz II patient

Ileal conduit patients have a stoma on the abdomen draining urine and usually return from theatre with two ureteric catheters, which should be removed on day 7 postoperatively, or as instructed by the surgeon. Urostomy bags will be required to continue collecting the urine and regular, supportive explanations should be given to the patient about how to empty the bag and care for the stoma. Patients should be given a supply of stoma bags to take home and access to additional bags.

However, if stoma bags cannot be obtained a last resort can be to use the Arua Stoma bag. This device is constructed using the end of a plastic cup, gauze, shoemaker twine and small polythene bags. The patient can cover the stoma with this method and change the polythene bag regularly (Figure 70).

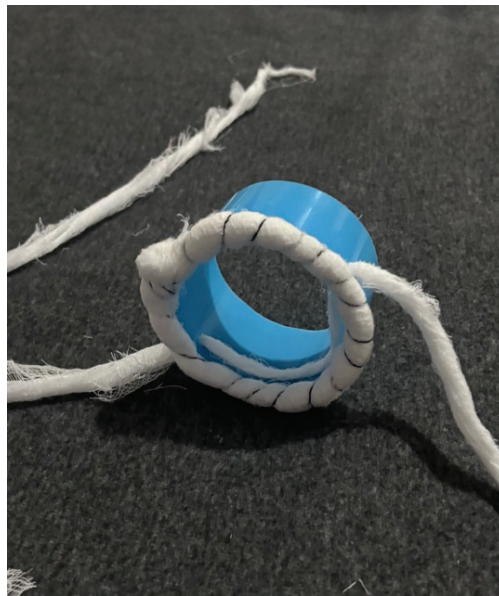


Figure 70 The Arua Stoma bag

Urinary-pouch patients have an indwelling Foley catheter to drain urine until the wound heals. The catheter is removed on day 14 and the patient should be taught how to perform clean intermittent self-catheterisation to empty her bladder.